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January 8, 2001

Ms. Charlene Rainville
Regional Grassland Exchange Coordinator
Douglas Ranger District--Thunder Basin NG
2250 East Richards Street
Douglas, WY 82633-8922

Dear Ms. Rainville:

This is in response to your December 13, 2000 (received December 23) request for information on locatable mineral resources in a land exchange proposal in which the Crown Partnership has offered certain non-Federal lands within the Nebraska National Forest in exchange for Federal lands also within the Nebraska National Forest.

In accordance with the working agreement under Public Law 86-509, we are providing you with a report on the locatable mineral resources on the lands described in "Exhibits A and B", included with your request. These lands comprise 560 acres, more or less, in Pennington County, South Dakota.

Sincerely yours,

Anna B. Wilson, Geologist
Mineral Resources Program, Central Region

Copies: W.C. Day
E.A. duBray

LOCATABLE MINERAL REPORT FOR THE CROWN PARTNERSHIP LAND EXCHANGE OFFER, BUFFALO GAP NATIONAL GRASSLAND, NEBRASKA NATIONAL FOREST, PENNINGTON COUNTY, SOUTH DAKOTA

By
Anna B. Wilson
U.S. Geological Survey

January 8, 2001

The following report is based on information contained in USGS mineral resource and commodity files, mineral information databases (MRDS and MAS), and on reports and maps available in the USGS library. These data are occasionally augmented with unpublished documents, personal communications, and professional experiences. No field studies or on-site visits were performed in preparing this report. Emphasis is primarily on locatable mineral resources. Leasable and salable resources are covered only if they appear in the above documents. Mineral resource assessments are subjective: the opinions expressed herein are entirely those of the author.

For the legal location description of lands considered for exchange, please refer to Attachment A (which includes Exhibits A and B, as supplied by the U.S. Forest Service). The locations of the Parcels are shown Attachment B.

Non-Federal (see Attachments A and B)
(Quinn Table 1:24,000 quadrangle, Wall 1:100,000 quadrangle)

Both parcels are mapped in Upper Cretaceous Pierre Shale (Darton, 1951, Petsch, 1953). However, recent geologic mapping places the northern parcel at the boundary of Holocene-age eolian dune sand of the Upper Wisconsin glacial overlying Upper Cretaceous Pierre Shale (Martin and others, in press) and the southern parcel in the Pierre Shale covered with Quaternary alluvium in the Sage Creek drainage. Extrapolating from 1:24,000 geologic mapping several miles to the south (Raymond and King, 1974b) there may be Quaternary alluvium in the steambeds, especially along Sage Creek.

No mines or prospects are known in the vicinity. Some alluvium in Sage Creek may be a local source of sand and gravel.

Federal Property (See attachments A and B)
(Quinn Table and Wall 1:24,000 quadrangles, Wall 1:100,000 quadrangle)

At a scale of 1:500,000, three 20-acre parcels south of Wall, are mapped as Tertiary White River Group (Darton, 1951, Petsch, 1953). New mapping at the same scale by Martin and others (in press) shows this area at the boundary where the Holocene(Upper Wisconsin) eolian dune sand caps the Oligocene-Eocene White River Group. Immediately south of the southernmost parcel, Raymond and King (1974a) mapped the steep bluffs as Oligocene Brule Formation which is equivalent to the upper part of the White River Group. The mesa tops to the west are mapped as Holocene eolian dune sand.

No mines or prospects are known in the area. Brule Formation contains clay that may be a resource. It also contains a “conspicuous oreodon and turtle fauna” (Raymond and King, 1974) that may be of interest to paleontologists and fossil collectors.

The western parcel is mapped as Holocene (Upper Wisconsin) eolian dune sand underlain by Upper Cretaceous Pierre Shale (Darton, 1951; Petsch, 1953; Martin and others, in press), same as the non-federal parcels, above. Extrapolating from 1:24,000 geologic mapping several miles to the south (Raymond and King, 1974b), suggests the same. No mineral resources are likely on this parcel.

REFERENCES CITED:

Darton, N.H., compiler, 1951, Geologic map of South Dakota: U.S. Geological Survey, scale 1:500,000.

Martin, J.E., Sawyer, J.F., and Fahrenbach, M.D., compilers, in press, Geologic map of South Dakota: South Dakota Geological Survey Map, scale 1:500,000.

Petsch, B.C., compiler, 1953, Geologic map of State of South Dakota: State Geological Survey, scale 1:500,000.

Raymond, W.H., and King, R.U., 1974a, Geologic map of the Wall SW and parts of the Wall and Conata quadrangles, Pennington, Shannon, and Washabaugh Counties, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-615, scale 1:24,000.

Raymond, W.H., and King, R.U., 1974b, Geologic map of the Quinn Table SW and parts of the Quinn Table and Imlay quadrangles, Pennington and Shannon Counties, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-601, scale 1:24,000.

LIST OF ATTACHMENTS:

A. Exhibits A & B–Location information as supplied by U.S. Forest Service.

B. Area map as supplied by the U.S. Forest Service.